# Typhoon Leo (05W)

Typhoon (TY) Leo (05W) developed off the coast of Vietnam and became the first tropical cyclone to threaten Hong Kong during the 1999 season. TY Leo (05W) peaked at 110 kt before weakening and making landfall with minimal effects on Hong Kong.

Typhoon Leo (05W) formed slowly in the South China Sea in late April. The cyclone formed within a broad monsoon depression off the coast of Vietnam partially due to enhanced southwesterly flow into the South China Sea caused by Typhoon Kate (04W) located in the Philippine Sea. Noting the increased winds and cyclonic shear in the area, JTWC added the disturbance which would become TY Leo to the Significant Tropical Weather Advisory (ABPW) at 251300Z April.

Within 24 hours, a broad circulation began to form and JTWC issued a Tropical Cyclone Formation Alert at 261030Z April. At 270300Z April, 25 kt winds were reported on the periphery of a very broad circulation and JTWC issued the first warning. As is the case with most monsoon depressions, the higher winds remained on the periphery of the broad circulation for several days. Since the winds near the center of the circulation were very light, locating the center was very difficult resulting in several relocations.

By 280600Z April, TD 05W intensified while moving westward and was upgraded to Tropical Storm Leo (05W). However, at 281800Z April, it became evident that the low-level circulation was moving in a cyclonic loop off the coast of Vietnam and the convection which was previously headed westward toward Vietnam was now moving northeast and consolidating. As the convection consolidated around a well-defined low-level circulation center, TS Leo began to rapidly intensify and attained typhoon intensity at 291800Z April.

Typhoon Leo (05W) formed directly below a relatively narrow 200 mb ridge. The ridge reduced the vertical wind shear affecting the cyclone, but the narrow nature of the ridge allowed for very good outflow north of the cyclone. Hence, TY Leo intensified quickly as it tracked northeastward at around 6 kt and reached a maximum intensity of 110 kt by 301800Z April. Although the thin ridge helped the rapid intensification, it also caused a rapid weakening of TY Leo. After TY Leo peaked, it moved north of the 200 mb ridge and quickly entered a high vertical shear environment. The low-level flow took TY Leo westward while the 500 mb and higher level flow pushed the cyclone to the northeast. Subsequently, the cyclone began to shear apart and weaken rapidly while moving to the north.

During the 36 hours prior to landfall, the low-level circulation became totally disconnected from the deep convection and tracked more northwestward and then north as it made landfall. TY Leo struck about 35 nm east of Hong Kong as a 30 kt system with minimal impact on the Hong Kong area. JTWC issued the 24th and final warning on 022100Z May.

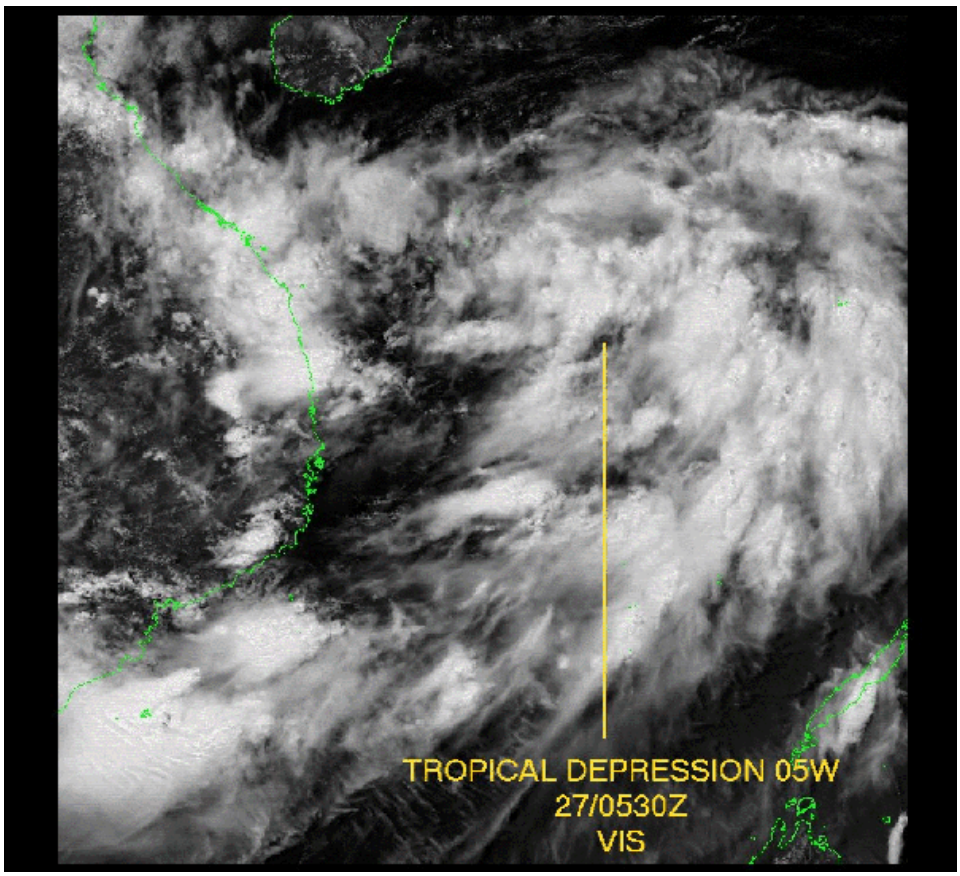



Figure 1-05-1. A visual image of TD 05W (25kt) at 270530Z April, off the east coast of Vietnam.

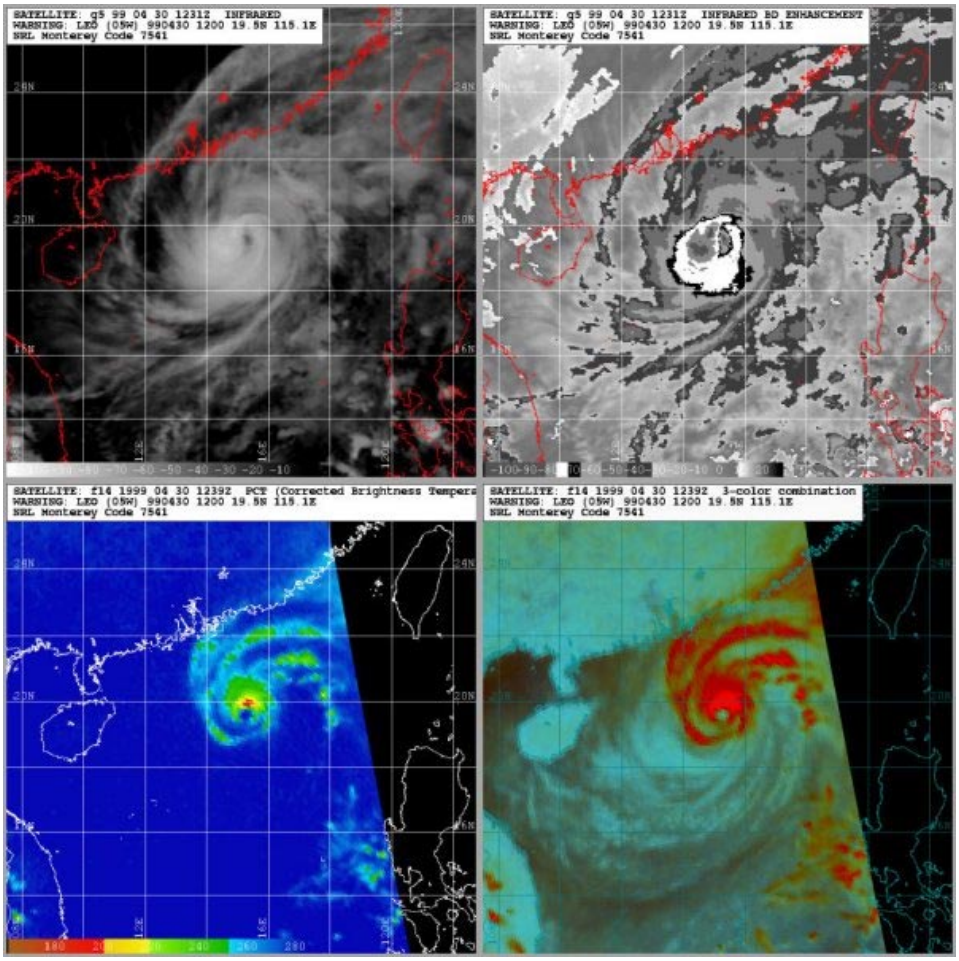
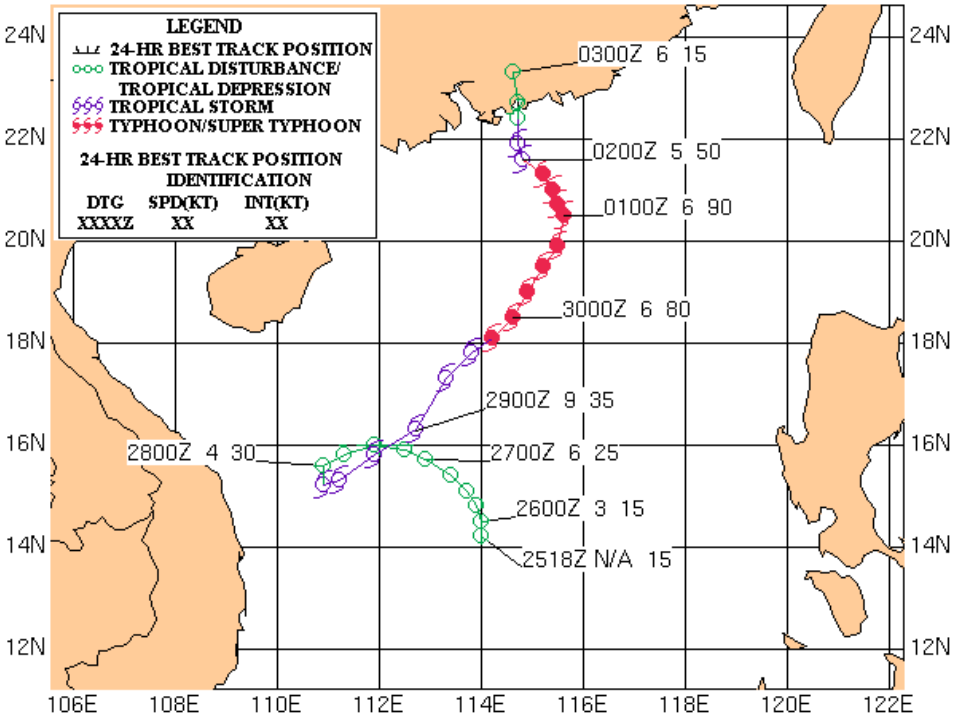



Figure 1-05-2. A 301239Z April multi-image mosaic from NRL including infrared imagery (top left and right) and Special Sensor Microwave Imagery (SSM/I) of Typhoon Leo (05W) at 105 kt intensity, 140 nm south of Hong Kong. TY Leo (05W) peaked six hours later at 110 kt.


LEGEND
24-HR BEST TRACK POSITION
TROPICAL DISTURBANCE/
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON/SUPER TYPHOON
24-HR BEST TRACK POSITION
IDENTIFICATION
DTG SPD(KT) INT(KT)
XXXXZ XX XX
0300Z 6 15
0200Z 5 50
0100Z 6 90
3000Z 6 80
2900Z 9 35
2800Z 4 30
2700Z 6 25
2600Z 3 15
2518Z N/A 15
24N
22N
20N
18N
16N
14N
12N
106E
108E
110E
112E
114E
116E
118E
120E
122E